

Report on Reading and Numeracy Progress at Waikato Institute of Technology (Wintec) for the period 2015-2017

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Appendices A to R: Cross-tabulations for the targeted reading and numeracy cohorts (with interpretations)

Appendix S: LN Gain Calculations for Reading and Numeracy for 2015-2017

ABSTRACT

This report outlines literacy and numeracy gains achieved at the Waikato Institute of Technology for the period 2015-2017. It extends similar analyses conducted for the Tertiary Education Commission (TEC) in 2015 (Greyling, 2015a, b, c, d, and e). Given the challenges in analyzing and tracking learner progress in the Literacy and Numeracy Assessment Tool (LNAT) outlined in the 2015 reports, we report on literacy progress goals for reading and numeracy following the current LNAT Gain Calculation algorithm. TEC have stated in their Literacy Implementation Strategy (2014-2019) (TEC, 2014) that by the end of 2019, the sector would be required to have achieved statistically significant progress for 25% of targeted L1 to L3 learners who, on initial assessment, achieved reading step scores of ≤ 3 and numeracy step scores of ≤ 4 . In this report, we apply the algorithm to show in Appendix S that it yields modest if not misleading results. We argue that

- If 69.4% of learners (n=1574) were at step 3 for reading (Appendix A, Table 1) and 57.4% of learners (n=1296) at step 4 for numeracy (Appendix A, Table 2) on initial assessment, the likelihood of reporting significant LN progress for the targeted learners at these higher levels was much lower than for learners at the lower end of the distribution.
- at higher levels of difficulty on the scale, it is far more difficult to achieve statistically significant gain.
- the algorithm masks LN success, especially where targeted learners were able to achieve exemption-level steps deemed by TEC to place them in the low risk-of-failure category.
- cross-tabulations represent a far more realistic mode of reflecting on LN progress, especially if we report on learners who achieved the threshold levels of exemption.
- cross-tabulations also allow us to identify the proportions of students who have achieved gains of two or more steps, or who regressed.
- reading and numeracy gains that see learners achieve the exemption levels for reading and numeracy are statistically and educationally significant.

We recommend that the results reported for the institute, centres and programmes be taken as baselines for setting targets for LN progress. These baselines may be cross-validated against earlier results for the institute (Greyling, 2017; and 2015a, b, c, d and e).

INTRODUCTION

LN Progress Reporting: The Tertiary Education Commission (TEC) formulated a target for literacy progress in reading and numeracy in the Literacy Implementation Strategy (2015-2019). By the end of 2019, the sector would have had to have achieved statistically significant progress for 25% of learners who, on initial assessment, achieved reading step scores ≤ 3 and numeracy step scores ≤ 4 . This target was set for all SAC-funded courses at level 1 and level 2 which are taught in level-1 to level-3 programmes, as well as selected level-4 programmes. Gain calculations which are conducted in the LNAT are based on the algorithm outlined in the section *TEC Methodology for Calculating Gain* (TEC, 2012).

Query lodged with TEC: Having applied the algorithm which, in our view, was contestable and inappropriate for assessing gain at steps in the upper end of the distribution (specifically progress for students at step 3 for reading and step 4 for numeracy), we confirmed that the 25% target remained the official target reported in the Literacy and Numeracy Implementation Strategy (TEC., 2015). The conversation with Ben Gardiner (NZCER) emphasized the importance of developmental work. To quote his email response (dated 01/03/2018):

(1)

1. TEC have not stepped back from the gain calculation in terms of the algorithm or the statistical method. They have paused in using the Statistically Significant Gain result as a key indicator or driver for L&N results and funding decisions. At this time, the focus is on good practice usage (initial and progress assessments).
2. The step thresholds (4 for Reading and 5 for Numeracy) were introduced after the SSG calculation/feature was added. So I think we need to be careful in framing the interaction between them.

As institute, we acknowledge this position, pursuing LN development practices within the framework of the TEC LN policy (2008), especially LN-embedded practice and the use of Pathways Awarua as a developmental intervention and LN classroom observations directed at educator development. We also acknowledge the second part of the response, but remain committed to the notion that category shifts in steps on the Progressions are more meaningful than scale score differences, especially when statistical gains are calculated at the upper end of the distributions of reading and numeracy scores.

Cross-tabulations as an accessible and fair descriptive account of LN Progress: As argued in Greyling (2015a, b, c, d and e; 2017), cross-tabulations provide an easily accessible, Table-based account of LN Progress. For example, our results show that 37% of the targeted numeracy cohort and 40.4% of the targeted reading cohort (Appendix A, Table 1 and 2) progressed to exemption level scores during the

period under review. These numbers increase when two-step gains outside the exemption levels are included¹.

Relevance of this report: This report captures the LN performance of learners in Student Achievement Component (SAC) funded programmes for the period 2015-2017. These results

- provide baseline metrics for defining specific targets for the period 2017-2019.
- indicate specific targets to be pursued, including the specific performance gaps to be overcome in the next two years.
- raises awareness of the possible impact of the low-stakes status of the LN assessment tool for learners (who receive no credits for participating in either initial or progress assessments).

Roadmap for this report: This report comprises the following topics:

- TEC methodology for calculating gain: Process and Challenges
- Impact of the sequence concept
- Impact of the low-stakes status of the LNAT for learners
- Limitations of the LNAT data-extraction file layout
- Reading and Numeracy progress results for the period 2015-2017
- Discussion and Conclusions

TEC METHODOLOGY FOR CALCULATING GAIN

For purposes of this report, we capture the LN gain calculation algorithm published by the TEC (2012) (and, to our knowledge, not updated since the 2012 outline). The steps in this calculation are outlined below in a format that we replicated in Excel worksheets:

Calculating Gain Score:

- (1) Calculate Gain Score where **Gain Score** = Progress Scale Score - Initial Scale Score.

Calculating Gain Score Error

- (1) Square the standard error values for initial and progress scores.
- (2) Add the squared values for Total Standard Error values calculated in step 2.
- (3) Calculate the Square Root of the total obtained in step 3 – the so-obtained value is known as **Gain Score error**.

¹ We focus attention on learners' reading and numeracy gains that saw them achieve exemption-level status. To achieve such status implies that both statistically and educationally significant shifts in literacy skills have occurred because learners at these step levels are deemed to face a low risk of failure related to LN skills.

Calculating statistically significant gain

- (4) Multiply the Gain score calculated in step 1 by the constant, 1.645.
- (5) Statistically significant gain is defined as follows: Gain Score error has to exceed the value obtained in step 5 and the value obtained in step 5 has to be positive.

Mathematical notation

Gain score = Progress Scale Score – Initial Scale Score

Gain Score Error = $\sqrt{a^2 + b^2}$ where a^2 = standard error for initial assessment, and b^2 = standard error for progress scale assessment.

Gains Score Error > (Gain Score x constant 1.645, where the so-obtained value is [+]).

This calculation, in the draft methodology document (TEC, Version 0.4 – June 2012), has been “paused” TEC, yet the 2019 target remains firmly set for the tertiary sector (TEC, 2015). We now argue a case for our choice which has been to use cross-tabulations to track LN progress and set targets.

Anticipating future developments, we also applied the algorithm, and have included the results in Appendix S. We would want some guidance from TEC on the LN Progress targets to be pursued, as well as the mathematical procedure to be used. Wintec wants to be in a position to contest the meaningfulness and reasonableness of the current algorithm as means to calculate gain. Wintec objections to using the LN gain calculation algorithm are well documented in a series of research reports, some funded by TEC (see Greyling, 2017; 2015a, b, c, d and e).

IMPACT OF THE SEQUENCE CONCEPT

One of the key features of the current methodology for LNAT use is the sequence concept. If learners meet the 90-day requirement for sustained enrolment, they can be assessed across academic years. This has posed a significant challenge in processing LN data extracted from the LNAT (TEC, 2017a and b):

- When there is no interface between the LNAT website and the institute’s student management system, a significant effort is needed to perform data-matching.
- Data processing is also negatively affected by the layout of the LNAT data-extraction file – the data-extraction file in CSV format lists all reading and numeracy scores in the same column. Thus, it does not follow a multivariate layout and requires much manual (and time-consuming) processing before repeated measures and cross-tabulation analyses can be performed.
- Applying the sequence concept requires row-by-row manual processing and is therefore resource-intensive.

The main benefits of the sequence concept are that

- over-assessment of learners can be avoided.
- the impact of longer time periods between assessments on LN progress can be tracked.

IMPACT OF THE LOW STAKES STATUS OF THE LN ASSESSMENT TOOL

One of our key concerns is the low-stakes status of the LN assessment tool results for learners. They earn no credits, nor are there any penalties if they choose to avoid sitting these assessments.

Paradoxically, these LN results are high stakes for the institute. A measure of this paradox can be quantified by calculating the proportion of students who regressed from initial to progress assessments yet completed their programme. This is another benefit of cross-tabulations which may show significant regress, say, of two steps or more. Although this is not the focus of this report, the information is reported in the cross-tabulations included in Appendices A to R.

LIMITATIONS OF THE LNAT DATA-EXTRACTION FILE LAYOUT

As stated earlier, the LNAT data-extraction layout implies that initial and progress assessment scores appear in the same columns of the CSV file. This layout means that scores are not available in separate columns; therefore, column-based comparisons cannot be performed. It is clear that the data-extraction file layout, the sequence concept, as well as the absence of an interface between the LN assessment tool website and the Wintec Arion system, pose a significant data-management challenge (especially if manual processing is used). Wintec feedback to TEC was submitted as part of the 2015 reports referred to earlier (Greyling, 2015a, b, c, d and e).

READING AND NUMERACY PROGRESS RESULTS FOR THE PERIOD 2015-2017

The written query we submitted to TEC is available on request. LN Progress calculated by the TEC Gain Calculation algorithm is deemed to mask a significant positive outcome for the sector. Instead, as stated earlier, we report cross-tabulation findings for the cohorts of learners who, for the period 2015 to 2017, were required to be re-assessed.

We report our findings² as follows:

² All cross-tabulations were calculated using the Statistical Package for the Social Sciences (SPSS)(IBM/SPSS, Version 22, 2014) while the TEC LN Gain calculation algorithm was calculated applying Excel functionality.

- In the main text of the report, we include in Table 1 and Table 2 the results for all targeted Wintec learners for the period 2015 to 2017. Given that the sequence concept allows for multi-year comparisons, we selected the last three years as the review period.
- In Appendices A to R (Reading and Numeracy), we report cross-tabulations for
 - Ethnicities, specifically Pākeha, Māori, Pasifika and Other ethnicities.
 - Cross-centre programmes, namely, Waikato Trades Academy (WTA), My Career Pathway (MCP), Māori and Pasifika Trade Training (MPTT) and Youth Guarantee (YG).
 - L1-L3 performance by Wintec Centre, including L-4 performance for Māori and Pasifika Trade Training and Introduction to Study (Centre for Education and Foundation Pathways).
 - Other organisations, a category that captures learners who were assessed outside Wintec.
- For each cross-tabulation in the Appendices, we highlight the following findings:
 - The percentages of learners who achieved exemption level scores.
 - The percentage of learners who achieved gains of step 3 or higher.
 - Brief interpretations of the key metrics.

In Table 1 we report a summary of the Reading cohort's performance.

Table 1: Reading Progress Outcomes for Students ≤ Step 3 in Initial assessments (2015-2017)

Appendices	Cohort (2015-2017)	% of Students ≥ Step 4	% of Students achieving ≥ Step 3
A	Wintec (N=2267)	40.1%	83.2%
B	Pākeha (n=806)	45.2%	83.9%
C	Māori (n=974)	38.3%	83.9%
D	Pasifika (n=178)	33.7%	81.5%
E	Other (n=309)	35.5%	79.3%
F	Trades (n=311)	42.1%	83.1%
G	CBHH (n=168)	35.8%	80.3%
H	CBITE (n=148)	43.2%	81.8%
I	CEFP (n=336)	50.0%	90.2%
J	CEFP(L2) (n=127)	40.2%	85.0%
K	CEFP(L4) (n=209)	55.9%	56.0%
L	CSPI (n=126)	46.1%	83.3%
M	Co-owned (n=974)	36.6%	83.0%
N	MCP (n=42)	35.8%	83.4%
O	MPTT (n=83)	31.3%	81.9%
P	WTA (n=767)	36.8%	84.0%
Q	YG (n=81)	39.5%	75.3%
R	Other orgs (n=205)	34.7%	78.5%

All percentages are above the 25% level.

These results show that

- of the total reading cohort (N=2267) required by TEC guide-lines to be re-tested during the period under review, 40.1% achieved exemption level steps (and scores) which are deemed by TEC to be the not-at-risk categories.
- students who achieve exemption status sit no further assessments.
- the four ethnicity categories achieved exemption level status ranging from 33.7% of Pasifika to 35.5% of other ethnicities, 38.3% of Māori and 45.2% of Pākeha.
- the highest proportion of students progressing to exemption levels was found to be the level-4 programme in the Centre for Education and Foundation Pathways (CEFP), namely 55.9%.
- of these proportions, the lowest was for MPTT where 31.3% of learners achieved exemption-level scores.
- the value of the sequence concept derives from the multi-year approach in calculating reading progress gains.
- these findings show educationally and statistically significant gain to be at levels above the 25% proportion proposed by TEC in 2015.

Next, in Table 2, we present the numeracy findings which are as significant as those for the reading cohort.

Table 2: Numeracy Progress Outcomes for Students ≤ Step 4 in Initial assessments (2015-2017)

Appendices	Cohort (2015-2017)	% of Students ≥ Step 4	% of Students achieving ≥ Step 3
A	Wintec (N=2259)	37%	92.1%
B	Pākeha (n=828)	40.6%	92%
C	Māori (n=1013)	34%	92.8%
D	Pasifika (n=172)	31.9%	89.5%
E	Other (n=246)	40.2%	90.7%
F	Trades (n=256)	42.5%	94.9%
G	CBHH (n=180)	22.2%	88.9%
H	CBITE (n=157)	36.3%	90.4%
I	CEFP (n=453)	44.8%	96.6%
J	CEFP(L2) (n=170)	41.1%	93.5%
K	CEFP(L4) (n=283)	47.0%	98.5%
L	CSPI (n=134)	39.6%	92.6%
M	Co-owned (n=859)	34.4%	89.9%
N	MCP (n=56)	23.2%	83.9%
O	MPTT (n=73)	30.1%	71.2%
P	WTA (n=659)	34.0%	90.0%
Q	YG (n=71)	50.7%	78.9%
R	Other orgs (n=220)	35.4%	90.9%

All results are above the 25% threshold, except for CBHH and MCP cohorts.

These results show that

- of the total numeracy cohort (N=2259) required by TEC guide-lines to be re-tested during the period under review, 37% achieved exemption level steps (and scores) which are deemed by TEC to be the not-at-risk categories.
- students who achieve exemption-level scores sit no further assessments.
- the four ethnicity categories follow a similar pattern as for reading, with 31.9% of Pasifika, 34% of Māori, 40.2% of Other ethnicities and 40.6% of Pākeha achieving exemption level scores.
- of the sub-groups, Youth Guarantee saw 50.7% of students achieve exemption level scores.
- the lowest proportions of students achieving exemption level scores were in programmes in Centre for Beauty Therapy, Hairdressing and Hospitality (CBHH) (22.2%) and My Career Pathway (MCP) (23.2%).
- as in the case of the reading cohort, multi-year assessments, based on the sequence concept, allow the impact of time to be captured.
- these findings show that all proportions are above 30% except for CBHH (22.2%) and MCP (23.2%).

DISCUSSION AND CONCLUSIONS

In this discussion, we note some of the technicalities of managing LNAT-related data, the meaningfulness of using cross-tabulations to track shifts in learners' LN performance, the significance of Wintec learners' LN progress during the 2015-2017 period under review, and these findings as trackable baselines for improved performance.

Technicalities in data management: We have noted several technical issues in managing LNAT results.

In brief, these findings (Greyling, 2015a, b, c, d and e) are the following:

- In the absence of an interface between the Wintec student management system and the LNAT website, institutes are required to implement time-consuming data-matching and data-processing to create usable data files.
- The LNAT data extraction files require significant data processing, often of the manual kind, to restructure the layout so that basic descriptive statistics and cross-tabulations can be performed.
- The data extraction file does not follow a multivariate layout; therefore, repeated measures analysis for paired samples can only be calculated when the extracted data-files have been reworked manually. For example, when the primary data set for this report was extracted, all reading and

numeracy scores achieved for the period 2015-2017 appeared in the same column (making up 23 800 rows of data in the CSV file). This was the total number of assessments administered for the period under review.

Cross-tabulations as statistical procedure of choice: In all reports we have generated (Greyling, 2015a, b, c, d, and e; 2017), we have used cross-tabulations to show the significant shifts and progress in reading and numeracy skills in the targeted cohorts of students. These cross-tabulations show shifts within steps for the targeted cohorts of students. For example, we may be interested in the number of step 1 learners identified in initial assessments. Appendix A Table 1 shows that 98 students (4.3% of the cohort of N=2267) were at step 1 and that 80 of them (81.6%) progressed to higher levels, with 12 students (12.3%) achieving exemptions. Interestingly, 43.9% (n=43) achieved a two-step gain. Thus, we are able to identify baselines and define metric-based goals for improvement at any step level. Our approach is well documented in other TEC research reports (Greyling, 2017; 2015a, b, c, d, and e).

The LN gains of 40.1% and 37% for reading and numeracy respectively are both educationally and statistically significant. For all the groups and sub-groups in Tables 1 and 2 in Appendix A, we found statistically significant results for paired t-tests comparing scale scores, and Chi-Square tests investigating the independence of paired data categories – these results were all significant at the 1% or 5% levels.

Our conclusions are that

- data-management strategies should remain a focal point at Wintec so that when TEC addresses LN progress calculations, the institute can contribute to these critical discussions.
- the findings captured in this report serve as baseline data for setting metrics-based improvement targets.
- cross-tabulations allow the institute to capture the success of its LN Policy and educator commitment to lifting the LN skills of their learners.

We propose, as we did in the 2015 reports (Greyling, 2015a, b, c, d and e), that cross-tabulations allow us to report success in LN progress at the institute. On the other hand, we reason that the current LN Progress Calculation algorithm yields modest if not misleading results. We argue that

- If 69.4% of learners (n=1574) were at step 3 for reading (Appendix A, Table 1) and 57.4% of learners (n=1296) at step 4 for numeracy (Appendix A, Table 2) on initial assessment, the likelihood of

reporting significant LN progress for the targeted learners at these higher levels was much lower than for learners at the lower end of the distribution.

- at higher levels of difficulty on the scale, it is far more difficult to achieve statistically significant gain.
- the algorithm masks LN success, especially where targeted learners were able to achieve exemption-level steps deemed by TEC to place them in the low risk-of-failure category.
- cross-tabulations represent a far more realistic mode of reflecting on LN progress, especially if we report on learners who achieved the threshold levels of exemption.
- cross-tabulations also allow us to identify the proportions of students who have achieved gains of two or more steps, or who regressed.
- reading and numeracy gains that see learners achieve the exemption levels for reading and numeracy are statistically and educationally significant.

We recommend that the results reported for the institute, centres and programmes be taken as baselines for setting targets for LN progress. These baselines may be cross-validated against earlier results for the institute (Greyling, 2017; and 2015a, b, c, d and e).

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Appendices: Reading and Numeracy Progress for Wintec Cohorts (2015-2017)

INTRODUCTION

The Appendices present findings for Wintec cohorts enrolled for targeted programmes from 2015-2017. These findings are presented for the full cohorts, and both sets of findings (for Reading and Numeracy) are then disaggregated by Centre, as well as co-owned across-centre programmes. In addition, we have disaggregated the findings to report on four categories of student: Pākehā, Māori, Pasifika and Other ethnicities. We include these findings as part of our tracking the performance of Māori and Pasifika learners whose performance is targeted as a strategic priority and in the current and earlier Tertiary Education Strategies.

APPENDICES

The following Appendices appear in this report:

- A: Wintec Cohorts for Reading and Numeracy (2015-2017)
- B: Pākehā Cohorts for Reading and Numeracy (2015-2017)
- C: Māori Cohorts for Reading and Numeracy (2015-2017)
- D: Pasifika Cohorts for Reading and Numeracy (2015-2017)
- E: Other Ethnicity Cohorts for Reading and Numeracy (2015-2017)
- F: Centre for Trades Cohorts for Reading and Numeracy (2015-2017)
- G: Centre for Beauty Therapy, Hairdressing and Hospitality Cohorts for Reading and Numeracy (2015-2017)
- H: Centre for Business, Information Technology and Enterprise Cohorts for Reading and Numeracy (2015-2017)
- I: Centre for Education and Foundation Pathways
- J: Centre for Education and Foundation Pathways L2 Cohorts for Reading and Numeracy (2015-2017)
- K: Centre for Education and Foundation Pathways L4 Cohorts for Reading and Numeracy (2015-2017)
- L: Centre for Science and Primary Industries Cohorts for Reading and Numeracy (2015-2017)
- M: Across-Centre Programmes Cohorts for Reading and Numeracy (2015-2017)
- N: My Career Pathway (MCP) Cohorts for Reading and Numeracy (2017)
- O: Māori and Pasifika Trade Training (MPTT) Cohorts for Reading and Numeracy (2015-2017)

- P: Waikato Trades Academy (WTA) Cohorts for Reading and Numeracy (2015-2017)
- Q: Youth Guarantee (YG) Cohorts for Reading and Numeracy (2015-2017)
- R: Cohorts for Reading and Numeracy (2015-2017) assessed by other organisations

INTERPRETATIONS OF FINDINGS

- The cross-tabulations for reading and numeracy cohorts are presented, followed by a brief interpretation of the findings. For purposes of this report, we use a two-step gain or more as our critical threshold.
- For each cohort, we report
 - the percentage of learners who gained threshold exemption level steps (step 4 or higher for reading; and step 5 or higher for numeracy)
 - the percentage of learners who remained in the at-risk category, as well as those at step 3 or higher.

APPENDIX A: WINTEC COHORTS FOR READING AND NUMERACY (2015-2017)

Table 1: Initial Step x Progress Step for Reading – Full Cohort (2015-2017)(N=2267)									
			Progress Step for Reading						
			1	2	3	4	5	6	Total
Initial Step for Reading	1	Count	18	37	31	9	3	0	98
		% within Initial Step	18.4%	37.8%	31.6%	9.2%	3.1%	0.0%	100.0%
		% within Progress Step	34.0%	11.2%	3.2%	1.2%	2.1%	0.0%	4.3%
		% of Total	0.8%	1.6%	1.4%	0.4%	0.1%	0.0%	4.3%
	2	Count	20	160	270	117	21	8	596
		% within Initial Step	3.4%	26.8%	45.3%	19.6%	3.5%	1.3%	100.0%
		% within Progress Step	37.7%	48.5%	27.7%	16.0%	15.0%	22.2%	26.3%
		% of Total	0.9%	7.1%	11.9%	5.2%	0.9%	0.4%	26.3%
	3	Count	15	133	675	606	116	28	1573
		% within Initial Step	1.0%	8.5%	42.9%	38.5%	7.4%	1.8%	100.0%
		% within Progress Step	28.3%	40.3%	69.2%	82.8%	82.9%	77.8%	69.4%
		% of Total	0.7%	5.9%	29.8%	26.7%	5.1%	1.2%	69.4%
Total	Count	53	330	976	732	140	36	2267	
	% within Initial Step	2.3%	14.6%	43.1%	32.3%	6.2%	1.6%	100.0%	
	% within Progress Step	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
	% of Total	2.3%	14.6%	43.1%	32.3%	6.2%	1.6%	100.0%	

Interpretation

- For the total number of students identified in initial reading assessments as needing follow-up progress assessments (N=2267), we found that
 - 908 (40.1%) of the cohort achieved exemption level steps.
- For the total cohort, we found that
 - 383 learners (16.9%) remained at risk (steps 1 and 2)
 - 83.1% of learners ended up at step 3 or higher.

Table 2: Initial Step x Progress Step for Numeracy - Full Wintec Cohort (2015-2017) (N=2259)

			Progress Step for Numeracy						Total
			1	2	3	4	5	6	
Initial Step for Numeracy	1	Count	15	23	15	6	8	2	69
		% within Initial Step	21.7%	33.3%	21.7%	8.7%	11.6%	2.9%	100.0%
		% within Progress Step	38.5%	16.3%	3.9%	0.7%	1.2%	1.4%	3.1%
		% of Total	0.7%	1.0%	0.7%	0.3%	0.4%	0.1%	3.1%
	2	Count	15	55	94	57	30	8	259
		% within Initial Step	5.8%	21.2%	36.3%	22.0%	11.6%	3.1%	100.0%
		% within Progress Step	38.5%	39.0%	24.6%	6.6%	4.3%	5.6%	11.5%
		% of Total	0.7%	2.4%	4.2%	2.5%	1.3%	0.4%	11.5%
	3	Count	7	39	152	297	118	22	635
		% within Initial Step	1.1%	6.1%	23.9%	46.8%	18.6%	3.5%	100.0%
		% within Progress Step	17.9%	27.7%	39.8%	34.5%	17.1%	15.3%	28.1%
		% of Total	0.3%	1.7%	6.7%	13.1%	5.2%	1.0%	28.1%
	4	Count	2	24	121	502	535	112	1296
		% within Initial Step	0.2%	1.9%	9.3%	38.7%	41.3%	8.6%	100.0%
		% within Progress Step	5.1%	17.0%	31.7%	58.2%	77.4%	77.8%	57.4%
		% of Total	0.1%	1.1%	5.4%	22.2%	23.7%	5.0%	57.4%
Total	Count		39	141	382	862	691	144	2259
		% within Initial Step	1.7%	6.2%	16.9%	38.2%	30.6%	6.4%	100.0%
		% within Progress Step	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	1.7%	6.2%	16.9%	38.2%	30.6%	6.4%	100.0%

Interpretation

- For the total number of students identified in initial numeracy assessments as needing follow-up progress assessments (N=2259), we found that
 - 835 (37%) of the cohort achieved exemption level steps.
- For the total cohort, we found that
 - 180 learners (7.9%) remained at risk (steps 1 and 2)
 - 92.1% of learners ended up at step 3 or higher.

APPENDIX B: WINTEC COHORTS FOR READING AND NUMERACY: PĀKEHA (2015-2017)
Table 1: Initial Step x Progress Step for Reading - Pākeha (2015-2017)(n=806)

		Progress Step for Reading						Total
		1	2	3	4	5	6	
Initial Step for Reading	Count	5	19	5	0	0	0	29
	% within Initial Step	17.2%	65.5%	17.2%	0.0%	0.0%	0.0%	100.0%
	% within Progress Step	31.3%	16.7%	1.6%	0.0%	0.0%	0.0%	3.6%
	% of Total	0.6%	2.4%	0.6%	0.0%	0.0%	0.0%	3.6%
	1							
2	Count	6 _c	48	71	39	5	3 _c	172
	% within Initial Step	3.5%	27.9%	41.3%	22.7%	2.9%	1.7%	100.0%
	% within Progress Step	37.5%	42.1%	22.8%	13.3%	8.6%	23.1%	21.3%
	% of Total	0.7%	6.0%	8.8%	4.8%	0.6%	0.4%	21.3%
	2							
3	Count	5	47	236	254	53	10 _c	605
	% within Initial Step	0.8%	7.8%	39.0%	42.0%	8.8%	1.7%	100.0%
	% within Progress Step	31.3%	41.2%	75.6%	86.7%	91.4%	76.9%	75.1%
	% of Total	0.6%	5.8%	29.3%	31.5%	6.6%	1.2%	75.1%
	3							
Total	Count	16	114	312	293	58	13	806
	% within Initial Step	2.0%	14.1%	38.7%	36.4%	7.2%	1.6%	100.0%
	% within Progress Step	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	% of Total	2.0%	14.1%	38.7%	36.4%	7.2%	1.6%	100.0%
	Total							

Interpretation

- For the Pākeha students identified in initial reading assessments as needing follow-up progress assessments (n=806), we found that
 - 364 (45.2%) achieved exemption level steps.
- For this subpopulation, we found that
 - 114 learners (16.1%) remained at risk (steps 1 and 2)
 - 83.9% of these learners ended up at step 3 or higher.

Table 2: Initial Step x Progress Step for Numeracy - Pākeha (2015-2017)(n=828)

			Progress Step for Numeracy						Total
			1	2	3	4	5	6	
Initial Step for Numeracy	1	Count	7	10	6	2	2	0	27
		% within Initial Step	25.9%	37.0%	22.2%	7.4%	7.4%	0.0%	100.0%
		% within Progress Step	50.0%	19.2%	4.5%	0.7%	0.7%	0.0%	3.3%
		% of Total	0.8%	1.2%	0.7%	0.2%	0.2%	0.0%	3.3%
	2	Count	5	17	30	13	8	4	77
		% within Initial Step	6.5%	22.1%	39.0%	16.9%	10.4%	5.2%	100.0%
		% within Progress Step	35.7%	32.7%	22.4%	4.5%	2.8%	8.2%	9.3%
		% of Total	0.6%	2.1%	3.6%	1.6%	1.0%	0.5%	9.3%
	3	Count	2	14	57	106	44	5	228
		% within Initial Step	0.9%	6.1%	25.0%	46.5%	19.3%	2.2%	100.0%
		% within Progress Step	14.3%	26.9%	42.5%	36.3%	15.3%	10.2%	27.5%
		% of Total	0.2%	1.7%	6.9%	12.8%	5.3%	0.6%	27.5%
	4	Count	0	11	41	171	233	40	496
		% within Initial Step	0.0%	2.2%	8.3%	34.5%	47.0%	8.1%	100.0%
		% within Progress Step	0.0%	21.2%	30.6%	58.6%	81.2%	81.6%	59.9%
		% of Total	0.0%	1.3%	5.0%	20.7%	28.1%	4.8%	59.9%
Total		Count	14	52	134	292	287	49	828
		% within Initial Step	1.7%	6.3%	16.2%	35.3%	34.7%	5.9%	100.0%
		% within Progress Step	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	1.7%	6.3%	16.2%	35.3%	34.7%	5.9%	100.0%

Interpretation

- For the Pākeha students identified in initial numeracy assessments as needing follow-up progress assessments (n=828), we found that
 - 336 (40.6%) achieved exemption level steps.
- For this subpopulation, we found that
 - 66 learners (8.0%) remained at risk (steps 1 and 2)
 - 92.0% of these learners ended up at step 3 or higher.

APPENDIX C: WINTEC COHORTS FOR READING AND NUMERACY - MĀORI (2015-2017)
Table 1: Initial Step x Progress Step for Reading - Māori (2015-2017) (n=974)

			Progress Step for Reading						Total
			1	2	3	4	5	6	
Initial Step for Reading	1	Count	7	13	17 _c	6	2	0	45
		% within Initial Step	15.6%	28.9%	37.8%	13.3%	4.4%	0.0%	100.0%
		% within Progress Step	31.8%	9.7%	3.8%	1.9%	4.3%	0.0%	4.6%
		% of Total	0.7%	1.3%	1.7%	0.6%	0.2%	0.0%	4.6%
	2	Count	9	69	138	50	10	3	279
		% within Initial Step	3.2%	24.7%	49.5%	17.9%	3.6%	1.1%	100.0%
		% within Progress Step	40.9%	51.5%	31.1%	16.1%	21.7%	16.7%	28.6%
		% of Total	0.9%	7.1%	14.2%	5.1%	1.0%	0.3%	28.6%
	3	Count	6	52	289	254	34	15	650
		% within Initial Step	0.9%	8.0%	44.5%	39.1%	5.2%	2.3%	100.0%
		% within Progress Step	27.3%	38.8%	65.1%	81.9%	73.9%	83.3%	66.7%
		% of Total	0.6%	5.3%	29.7%	26.1%	3.5%	1.5%	66.7%
	Total	Count	22	134	444	310	46	18	974
		% within Initial Step	2.3%	13.8%	45.6%	31.8%	4.7%	1.8%	100.0%
		% within Progress Step	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	2.3%	13.8%	45.6%	31.8%	4.7%	1.8%	100.0%

Interpretation

- For Māori students identified in initial reading assessments as needing follow-up progress assessments (n=974), we found that
 - 374 (38.3%) achieved exemption level steps.
- For this subpopulation, we found that
 - 156 learners (16.1%) remained at risk (steps 1 and 2)
 - 83.9% ended up at step 3 or higher.

Table 2: Initial Step x Progress Step for Numeracy - Māori (2015-2017) (n=1013)

Progress Step for Numeracy									Total
		1	2	3	4	5	6		
Initial Step for Numeracy	1	Count	6	4	7	4	2	1	24
		% within Initial Step	25.0%	16.7%	29.2%	16.7%	8.3%	4.2%	100.0%
		% within Progress Step	37.5%	7.0%	3.8%	1.0%	0.7%	1.5%	2.4%
		% of Total	0.6%	0.4%	0.7%	0.4%	0.2%	0.1%	2.4%
	2	Count	6	29	42	33	12	1	123
		% within Initial Step	4.9%	23.6%	34.1%	26.8%	9.8%	0.8%	100.0%
		% within Progress Step	37.5%	50.9%	22.8%	8.0%	4.3%	1.5%	12.1%
		% of Total	0.6%	2.9%	4.1%	3.3%	1.2%	0.1%	12.1%
	3	Count	3	17	75	130	46	12	283
		% within Initial Step	1.1%	6.0%	26.5%	45.9%	16.3%	4.2%	100.0%
		% within Progress Step	18.8%	29.8%	40.8%	31.6%	16.6%	17.6%	27.9%
		% of Total	0.3%	1.7%	7.4%	12.8%	4.5%	1.2%	27.9%
	4	Count	1	7	60	244	217	54	583
		% within Initial Step	0.2%	1.2%	10.3%	41.9%	37.2%	9.3%	100.0%
		% within Progress Step	6.3%	12.3%	32.6%	59.4%	78.3%	79.4%	57.6%
		% of Total	0.1%	0.7%	5.9%	24.1%	21.4%	5.3%	57.6%
Total	Count	16	57	184	411	277	68	1013	
	% within Initial Step	1.6%	5.6%	18.2%	40.6%	27.3%	6.7%	100.0%	
	% within Progress Step	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
	% of Total	1.6%	5.6%	18.2%	40.6%	27.3%	6.7%	100.0%	

Interpretation

- For Māori students identified in initial numeracy assessments as needing follow-up progress assessments (n=1013), we found that
 - 345 (34.0%) achieved exemption level steps.
- For this subpopulation, we found that
 - 73 learners (7.2%) remained at risk (steps 1 and 2)
 - 92.8% of learners ended up at step 3 or higher.

APPENDIX D: WINTEC COHORTS FOR READING AND NUMERACY – PASIFIKA (2015-2017)

		Progress Step for Reading					Total	
		1	2	3	4	5		
Initial Step for Reading	1	Count	1	2	4	2	0	9
		% within Initial Step	11.1%	22.2%	44.4%	22.2%	0.0%	100.0%
		% within Progress Step	20.0%	7.1%	4.7%	4.3%	0.0%	5.1%
		% of Total	0.6%	1.1%	2.2%	1.1%	0.0%	5.1%
	2	Count	3	13	20	14	1	51
		% within Initial Step	5.9%	25.5%	39.2%	27.5%	2.0%	100.0%
		% within Progress Step	60.0%	46.4%	23.5%	29.8%	7.7%	28.7%
		% of Total	1.7%	7.3%	11.2%	7.9%	0.6%	28.7%
	3	Count	1	13	61	31	12	118
		% within Initial Step	0.8%	11.0%	51.7%	26.3%	10.2%	100.0%
		% within Progress Step	20.0%	46.4%	71.8%	66.0%	92.3%	66.3%
		% of Total	0.6%	7.3%	34.3%	17.4%	6.7%	66.3%
Total	Count	5	28	85	47	13	178	
	% within Initial Step	2.8%	15.7%	47.8%	26.4%	7.3%	100.0%	
	% within Progress Step	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
	% of Total	2.8%	15.7%	47.8%	26.4%	7.3%	100.0%	

Interpretation

- For Pasifika students identified in initial reading assessments as needing follow-up progress assessments (n=178), we found that
 - 60 (33.7%) achieved exemption level steps.
- For this subpopulation, we found that
 - 33 learners (18.5%) remained at risk (steps 1 and 2)
 - 81.5% ended up at step 3 or higher.

Table 2: Initial Step x Progress Step for Numeracy - Pasifika (2015-2017) (n=172)

			Progress Step for Numeracy						Total
			1	2	3	4	5	6	
Initial Step for Numeracy	1	Count	1	3	0	0	0	0	4
		% within Initial Step	25.0%	75.0%	0.0%	0.0%	0.0%	0.0%	100.0%
			20.0%	23.1%	0.0%	0.0%	0.0%	0.0%	2.3%
		% within Progress Step							
	2	Count	3	4	9	6	5	2	29
		% within Initial Step	10.3%	13.8%	31.0%	20.7%	17.2%	6.9%	100.0%
			60.0%	30.8%	33.3%	8.3%	10.9%	22.2%	16.9%
		% within Progress Step							
	3	Count	0	4	8	29	10	2	53
		% within Initial Step	0.0%	7.5%	15.1%	54.7%	18.9%	3.8%	100.0%
			0.0%	30.8%	29.6%	40.3%	21.7%	22.2%	30.8%
		% within Progress Step							
	4	Count	1	2	10	37	31	5	86
		% within Initial Step	1.2%	2.3%	11.6%	43.0%	36.0%	5.8%	100.0%
			20.0%	15.4%	37.0%	51.4%	67.4%	55.6%	50.0%
		% within Progress Step							
	Total	Count	5	13	27	72	46	9	172
		% within Initial Step	2.9%	7.6%	15.7%	41.9%	26.7%	5.2%	100.0%
			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% within Progress Step							
	Total	Count	5	13	27	72	46	9	172
		% within Initial Step	2.9%	7.6%	15.7%	41.9%	26.7%	5.2%	100.0%
			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% within Progress Step							

Interpretation

- For Pasifika students identified in initial numeracy assessments as needing follow-up progress assessments (n=172), we found that
 - 55 (31.9%) achieved exemption level steps.
- For this subpopulation, we found that
 - 18 learners (10.5%) remained at risk (steps 1 and 2)
 - 89.5% ended up at step 3 or higher.

APPENDIX E: WINTEC COHORTS FOR READING AND NUMERACY – OTHER ETHNICITIES (2015-2017)

			Progress Step for Reading						Total
			1	2	3	4	5	6	
Initial Step for Reading	1	Count	5	3	5	1	1	0	15
		% within Initial Step	33.3%	20.0%	33.3%	6.7%	6.7%	0.0%	100.0%
		% within Progress Step	50.0%	5.6%	3.7%	1.2%	4.3%	0.0%	4.9%
		% of Total	1.6%	1.0%	1.6%	0.3%	0.3%	0.0%	4.9%
	2	Count	2	30	41	14	5	2	94
		% within Initial Step	2.1%	31.9%	43.6%	14.9%	5.3%	2.1%	100.0%
		% within Progress Step	20.0%	55.6%	30.4%	17.1%	21.7%	40.0%	30.4%
		% of Total	0.6%	9.7%	13.3%	4.5%	1.6%	0.6%	30.4%
	3	Count	3	21	89	67	17	3	200
		% within Initial Step	1.5%	10.5%	44.5%	33.5%	8.5%	1.5%	100.0%
		% within Progress Step	30.0%	38.9%	65.9%	81.7%	73.9%	60.0%	64.7%
		% of Total	1.0%	6.8%	28.8%	21.7%	5.5%	1.0%	64.7%
Total	Count	10	54	135	82	23	5	309	
	% within Initial Step	3.2%	17.5%	43.7%	26.5%	7.4%	1.6%	100.0%	
	% within Progress Step	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
	% of Total	3.2%	17.5%	43.7%	26.5%	7.4%	1.6%	100.0%	

Interpretation

- For the category *other ethnicities* students identified in initial reading assessments as needing follow-up progress assessments (n=309), we found that
 - 110 (35.5%) achieved exemption level steps.
- For this subpopulation, we found that
 - 64 learners (20.7%) remained at risk (steps 1 and 2)
 - 79.3% ended up at step 3 or higher.

Table 2: Initial Step x Progress Step for Numeracy - Other ethnicities (2015-2017) (n=246)

		Progress Step for Numeracy							Total
		1	2	3	4	5	6		
Initial Step for Numeracy	1	Count	1 _{a, b}	6 _b	2 _{a, b, c}	0 _c	4 _{a, c}	1 _{a, b, c}	14
		% within Initial Step	7.1%	42.9%	14.3%	0.0%	28.6%	7.1%	100.0%
		% within Progress Step	25.0%	31.6%	5.4%	0.0%	4.9%	5.6%	5.7%
		% of Total	0.4%	2.4%	0.8%	0.0%	1.6%	0.4%	5.7%
		2	Count	1 _{a, b}	5 _{a, b}	13 _b	5 _a	5 _a	1 _{a, b}
	% within Initial Step		3.3%	16.7%	43.3%	16.7%	16.7%	3.3%	100.0%
	% within Progress Step		25.0%	26.3%	35.1%	5.7%	6.2%	5.6%	12.2%
	% of Total		0.4%	2.0%	5.3%	2.0%	2.0%	0.4%	12.2%
	3		Count	2 _a	4 _a	12 _a	32 _a	18 _a	3 _a
		% within Initial Step	2.8%	5.6%	16.9%	45.1%	25.4%	4.2%	100.0%
		% within Progress Step	50.0%	21.1%	32.4%	36.8%	22.2%	16.7%	28.9%
		% of Total	0.8%	1.6%	4.9%	13.0%	7.3%	1.2%	28.9%
		4	Count	0 _{a, b, c}	4 _{b, c}	10 _c	50 _{a, b}	54 _a	13 _a
	% within Step_St		0.0%	3.1%	7.6%	38.2%	41.2%	9.9%	100.0%
	% within Step		0.0%	21.1%	27.0%	57.5%	66.7%	72.2%	53.3%
	% of Total		0.0%	1.6%	4.1%	20.3%	22.0%	5.3%	53.3%
	Total		Count	4	19	37	87	81	18
		% within Initial Step	1.6%	7.7%	15.0%	35.4%	32.9%	7.3%	100.0%
		% within Progress Step	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	1.6%	7.7%	15.0%	35.4%	32.9%	7.3%	100.0%

Interpretation

- For the category *other ethnicities* students identified in initial numeracy assessments as needing follow-up progress assessments (n=246), we found that
 - 99 (40.2%) achieved exemption level steps.
- For this subpopulation, we found that
 - 23 learners (9.3%) remained at risk (steps 1 and 2)
 - 90.7% ended up at step 3 or higher.

APPENDIX F: WINTEC COHORTS FOR READING AND NUMERACY - CENTRE FOR TRADES (2015-2017)
Table 1: Initial Step x Progress Step for Reading - Centre for Trades (2015-2017) (n=311)

			Progress Step for Reading						Total
			1	2	3	4	5	6	
Initial Step for Reading	1	Count	2	4	4	1	1	0	12
		% within Initial Step	16.7%	33.3%	33.3%	8.3%	8.3%	0.0%	100.0%
		% within Progress Step	33.3%	7.4%	3.3%	1.0%	4.0%	0.0%	3.9%
		% of Total	0.6%	1.3%	1.3%	0.3%	0.3%	0.0%	3.9%
	2	Count	3	30	22	15	3	3	76
		% within Initial Step	3.9%	39.5%	28.9%	19.7%	3.9%	3.9%	100.0%
		% within Progress Step	50.0%	55.6%	18.3%	15.2%	12.0%	42.9%	24.4%
		% of Total	1.0%	9.6%	7.1%	4.8%	1.0%	1.0%	24.4%
	3	Count	1	20	94	83	21	4	223
		% within Initial Step	0.4%	9.0%	42.2%	37.2%	9.4%	1.8%	100.0%
		% within Progress Step	16.7%	37.0%	78.3%	83.8%	84.0%	57.1%	71.7%
		% of Total	0.3%	6.4%	30.2%	26.7%	6.8%	1.3%	71.7%
Total		Count	6	54	120	99	25	7	311
		% within Initial Step	1.9%	17.4%	38.6%	31.8%	8.0%	2.3%	100.0%
		% within Progress Step	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	1.9%	17.4%	38.6%	31.8%	8.0%	2.3%	100.0%

Interpretation

- For Centre for Trades students identified in initial reading assessments as needing follow-up progress assessments (n=311), we found that
 - 131 (42.1%) achieved exemption level steps.
- For this subpopulation, we found that
 - 383 learners (16.9%) remained at risk (steps 1 and 2)
 - 83.1% of learners ended up at step 3 or higher.

Table 2: Initial Step x Progress Step for Numeracy - Centre for Trades (2015-2017) (n=256)

			Progress Step for Numeracy						Total
			1	2	3	4	5	6	
Initial Step for Numeracy	1	Count	0	1	2	0	2	0	5
		% within Initial Step	0.0%	20.0%	40.0%	0.0%	40.0%	0.0%	100.0%
		% within Progress Step	0.0%	8.3%	5.7%	0.0%	2.4%	0.0%	2.0%
		% of Total	0.0%	0.4%	0.8%	0.0%	0.8%	0.0%	2.0%
	2	Count	1	4	6	10	3	1	25
		% within Initial Step	4.0%	16.0%	24.0%	40.0%	12.0%	4.0%	100.0%
		% within Progress Step	100.0%	33.3%	17.1%	10.1%	3.7%	3.7%	9.8%
		% of Total	0.4%	1.6%	2.3%	3.9%	1.2%	0.4%	9.8%
	3	Count	0	4	15	29	14	8	70
		% within Initial Step	0.0%	5.7%	21.4%	41.4%	20.0%	11.4%	100.0%
		% within Progress Step	0.0%	33.3%	42.9%	29.3%	17.1%	29.6%	27.3%
		% of Total	0.0%	1.6%	5.9%	11.3%	5.5%	3.1%	27.3%
	4	Count	0	3	12	60	63	18	156
		% within Initial Step	0.0%	1.9%	7.7%	38.5%	40.4%	11.5%	100.0%
		% within Progress Step	0.0%	25.0%	34.3%	60.6%	76.8%	66.7%	60.9%
		% of Total	0.0%	1.2%	4.7%	23.4%	24.6%	7.0%	60.9%
Total	Count		1	12	35	99	82	27	256
		% within Initial Step	0.4%	4.7%	13.7%	38.7%	32.0%	10.5%	100.0%
		% within Progress Step	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	0.4%	4.7%	13.7%	38.7%	32.0%	10.5%	100.0%

Interpretation

- For Centre for Trades students identified in initial numeracy assessments as needing follow-up progress assessments (n=256), we found that
 - 109 (42.5%) achieved exemption level steps.
- For this subpopulation, we found that
 - 13 learners (5.1%) remained at risk (steps 1 and 2)
 - 94.9% of learners ended up at step 3 or higher.

APPENDIX G: WINTEC COHORTS FOR READING AND NUMERACY – CENTRE FOR BEAUTY THERAPY, HAIRDRESSING AND HOSPITALITY (2015-2017)
Table 1: Initial Step x Progress Step for Reading - Centre for Beauty Therapy, Hairdressing and Hospitality (2015-2017) (n=168)

			Progress Step for Reading						Total
			1	2	3	4	5	6	
Initial Step for Reading	1	Count	0	5	1	0	0	0	6
		% within Initial Step	0.0%	83.3%	16.7%	0.0%	0.0%	0.0%	100.0%
		% within Progress Step	0.0%	16.7%	1.3%	0.0%	0.0%	0.0%	3.6%
		% of Total	0.0%	3.0%	0.6%	0.0%	0.0%	0.0%	3.6%
2		Count	1	16	21	6	1	0	45
		% within Initial Step	2.2%	35.6%	46.7%	13.3%	2.2%	0.0%	100.0%
		% within Progress Step	33.3%	53.3%	28.0%	11.5%	20.0%	0.0%	26.8%
		% of Total	0.6%	9.5%	12.5%	3.6%	0.6%	0.0%	26.8%
3		Count	2	9	53	46	4	3	117
		% within Initial Step	1.7%	7.7%	45.3%	39.3%	3.4%	2.6%	100.0%
		% within Progress Step	66.7%	30.0%	70.7%	88.5%	80.0%	100.0%	69.6%
		% of Total	1.2%	5.4%	31.5%	27.4%	2.4%	1.8%	69.6%
Total		Count	3	30	75	52	5	3	168
		% within Initial Step	1.8%	17.9%	44.6%	31.0%	3.0%	1.8%	100.0%
		% within Progress Step	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	1.8%	17.9%	44.6%	31.0%	3.0%	1.8%	100.0%

Interpretation

- For CBHH students identified in initial reading assessments as needing follow-up progress assessments (n=168), we found that
 - 60 (35.8%) achieved exemption level steps.
- For this sub-population, we found that
 - 33 learners (19.7%) remained at risk (steps 1 and 2)
 - 80.3% of learners ended up at step 3 or higher.

Table 2: Initial Step x Progress Step for Numeracy - Centre for Beauty Therapy, Hairdressing and Hospitality (CBHH) (2015-2017)(n=180)

			Progress Step for Numeracy						Total
			1	2	3	4	5	6	
Initial Step for Numeracy	1	Count	3	1	2	0	0	0	6
		% within Initial Step	50.0%	16.7%	33.3%	0.0%	0.0%	0.0%	100.0%
			33.3%	9.1%	4.8%	0.0%	0.0%	0.0%	3.3%
		% within Progress Step							
		% of Total	1.7%	0.6%	1.1%	0.0%	0.0%	0.0%	3.3%
	2	Count	4	3	11	5	1	0	24
		% within Initial Step	16.7%	12.5%	45.8%	20.8%	4.2%	0.0%	100.0%
			44.4%	27.3%	26.2%	6.4%	3.1%	0.0%	13.3%
		% within Progress Step							
		% of Total	2.2%	1.7%	6.1%	2.8%	0.6%	0.0%	13.3%
	3	Count	1	6	18	33	5	2	65
		% within Initial Step	1.5%	9.2%	27.7%	50.8%	7.7%	3.1%	100.0%
			11.1%	54.5%	42.9%	42.3%	15.6%	25.0%	36.1%
		% within Progress Step							
		% of Total	0.6%	3.3%	10.0%	18.3%	2.8%	1.1%	36.1%
	4	Count	1	1	11	40	26	6	85
		% within Initial Step	1.2%	1.2%	12.9%	47.1%	30.6%	7.1%	100.0%
			11.1%	9.1%	26.2%	51.3%	81.3%	75.0%	47.2%
		% within Progress Step							
		% of Total	0.6%	0.6%	6.1%	22.2%	14.4%	3.3%	47.2%
Total		Count	9	11	42	78	32	8	180
		% within Initial Step	5.0%	6.1%	23.3%	43.3%	17.8%	4.4%	100.0%
			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% within Progress Step							
		% of Total	5.0%	6.1%	23.3%	43.3%	17.8%	4.4%	100.0%

Interpretation

- For CBHH students identified in initial numeracy assessments as needing follow-up progress assessments (n=180), we found that
 - 40 (22.2%) of the cohort achieved exemption level steps.
- For this subpopulation, we found that
 - 20 learners (11.1%) remained at risk (steps 1 and 2)
 - 88.9% of learners ended up at step 3 or higher.

APPENDIX H: WINTEC COHORTS FOR READING AND NUMERACY – CENTRE FOR BUSINESS, INFORMATION TECHNOLOGY AND ENTERPRISE (CBITE) (2015-2017)
Table 1: Initial Step x Progress Step for Reading - Centre for Business, Information Technology and Enterprise (CBITE) (2015-2017) (n=148)

			Progress Step for Reading						Total
			1	2	3	4	5	6	
Initial Step for Reading	1	Count	1	2	1	0	0	0	4
		% within Initial Step	25.0%	50.0%	25.0%	0.0%	0.0%	0.0%	100.0%
		% within Progress Step	25.0%	8.7%	1.8%	0.0%	0.0%	0.0%	2.7%
		% of Total	0.7%	1.4%	0.7%	0.0%	0.0%	0.0%	2.7%
	2	Count	1	11	9	8	2	1	32
		% within Initial Step	3.1%	34.4%	28.1%	25.0%	6.3%	3.1%	100.0%
		% within Progress Step	25.0%	47.8%	15.8%	19.5%	10.5%	25.0%	21.6%
		% of Total	0.7%	7.4%	6.1%	5.4%	1.4%	0.7%	21.6%
	3	Count	2	10	47	33	17	3	112
		% within Initial Step	1.8%	8.9%	42.0%	29.5%	15.2%	2.7%	100.0%
		% within Progress Step	50.0%	43.5%	82.5%	80.5%	89.5%	75.0%	75.7%
		% of Total	1.4%	6.8%	31.8%	22.3%	11.5%	2.0%	75.7%
Total		Count	4	23	57	41	19	4	148
		% within Initial Step	2.7%	15.5%	38.5%	27.7%	12.8%	2.7%	100.0%
		% within Progress Step	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	2.7%	15.5%	38.5%	27.7%	12.8%	2.7%	100.0%

Interpretation

- For CBITE students identified in initial reading assessments as needing follow-up progress assessments (n=148), we found that
 - 64 (43.2%) of the cohort achieved exemption level steps.
- For this subpopulation, we found that
 - 27 learners (18.2%) remained at risk (steps 1 and 2)
 - 81.8% of learners ended up at step 3 or higher.

Table 2: Initial Step x Progress Step for Numeracy - Centre for Business, Information Technology and Enterprise (CBITE)(2015-2017) (n=157)

		Progress Step for Numeracy							
		1	2	3	4	5	6	Total	
Initial Step for Numeracy	1	Count	3	2	0	0	2	0	7
		% within Initial Step	42.9%	28.6%	0.0%	0.0%	28.6%	0.0%	100.0%
			60.0%	20.0%	0.0%	0.0%	4.5%	0.0%	4.5%
		% within Progress Step							
		% of Total	1.9%	1.3%	0.0%	0.0%	1.3%	0.0%	4.5%
	2	Count	2	3	6	2	1	2	16
		% within Initial Step	12.5%	18.8%	37.5%	12.5%	6.3%	12.5%	100.0%
			40.0%	30.0%	25.0%	3.3%	2.3%	15.4%	10.2%
		% within Progress Step							
		% of Total	1.3%	1.9%	3.8%	1.3%	0.6%	1.3%	10.2%
	3	Count	0	4	10	15	4	0	33
		% within Initial Step	0.0%	12.1%	30.3%	45.5%	12.1%	0.0%	100.0%
			0.0%	40.0%	41.7%	24.6%	9.1%	0.0%	21.0%
		% within Progress Step							
		% of Total	0.0%	2.5%	6.4%	9.6%	2.5%	0.0%	21.0%
	4	Count	0	1	8	44	37	11	101
		% within Initial Step	0.0%	1.0%	7.9%	43.6%	36.6%	10.9%	100.0%
			0.0%	10.0%	33.3%	72.1%	84.1%	84.6%	64.3%
		% within Progress Step							
		% of Total	0.0%	0.6%	5.1%	28.0%	23.6%	7.0%	64.3%
Total	Count	5	10	24	61	44	13	157	
	% within Initial Step	3.2%	6.4%	15.3%	38.9%	28.0%	8.3%	100.0%	
	% within Progress Step	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
	% of Total	3.2%	6.4%	15.3%	38.9%	28.0%	8.3%	100.0%	

Interpretation

- For CBITE students identified in initial numeracy assessments as needing follow-up progress assessments (n=157), we found that
 - 57 (36.3%) achieved exemption level steps.
- For this subpopulation, we found that
 - 15 learners (9.6%) remained at risk (steps 1 and 2)
 - 90.4% of learners ended up at step 3 or higher.

APPENDIX I: WINTEC COHORTS FOR READING AND NUMERACY – CENTRE FOR EDUCATION AND FOUNDATION PATHWAYS (2015-2017)

Table 1: Initial Step x Progress Step for Reading - Centre for Education and Foundation Pathways (CEFP) (2015-2017) (n=336)

Progress Step for Reading									Total
		1	2	3	4	5	6		
Initial Step for Reading	1	Count	1	1	2	1	0	0	5
		% within Initial Step	20.0%	20.0%	40.0%	20.0%	0.0%	0.0%	100.0%
		% within Progress Step	33.3%	3.3%	1.5%	0.7%	0.0%	0.0%	1.5%
		% of Total	0.3%	0.3%	0.6%	0.3%	0.0%	0.0%	1.5%
	2	Count	2	15	31	16	1	0	65
		% within Initial Step	3.1%	23.1%	47.7%	24.6%	1.5%	0.0%	100.0%
		% within Progress Step	66.7%	50.0%	23.0%	11.9%	3.6%	0.0%	19.3%
		% of Total	0.6%	4.5%	9.2%	4.8%	0.3%	0.0%	19.3%
	3	Count	0	14	102	117	27	6	266
		% within Initial Step	0.0%	5.3%	38.3%	44.0%	10.2%	2.3%	100.0%
		% within Progress Step	0.0%	46.7%	75.6%	87.3%	96.4%	100.0%	79.2%
		% of Total	0.0%	4.2%	30.4%	34.8%	8.0%	1.8%	79.2%
Total	Count	3	30	135	134	28	6	336	
	% within Initial Step	0.9%	8.9%	40.2%	39.9%	8.3%	1.8%	100.0%	
	% within Progress Step	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
	% of Total	0.9%	8.9%	40.2%	39.9%	8.3%	1.8%	100.0%	

Interpretation

- For CEFP students identified in initial reading assessments as needing follow-up progress assessments (n=336), we found that
 - 168 (50.0%) achieved exemption level steps.
- For this subpopulation, we found that
 - 33 learners (9.8%) remained at risk (steps 1 and 2)
 - 90.2% of learners ended up at step 3 or higher.

Table 2: Initial Step x Progress Step for Numeracy - Centre for Education and Foundation Pathways (CEFP)(2015-2017)(n=453)

			Progress Step for Numeracy						Total
			1	2	3	4	5	6	
Initial Step for Numeracy	1	Count	2	1	4	0	0	0	7
		% within Initial Step	28.6%	14.3%	57.1%	0.0%	0.0%	0.0%	100.0%
			50.0%	9.1%	6.7%	0.0%	0.0%	0.0%	1.5%
		% within Progress Step							
		% of Total	0.4%	0.2%	0.9%	0.0%	0.0%	0.0%	1.5%
	2	Count	1	4	15	5	4	1	30
		% within Initial Step	3.3%	13.3%	50.0%	16.7%	13.3%	3.3%	100.0%
			25.0%	36.4%	25.0%	2.9%	2.2%	4.2%	6.6%
		% within Progress Step							
		% of Total	0.2%	0.9%	3.3%	1.1%	0.9%	0.2%	6.6%
	3	Count	0	2	19	58	32	1	112
		% within Initial Step	0.0%	1.8%	17.0%	51.8%	28.6%	0.9%	100.0%
			0.0%	18.2%	31.7%	33.1%	17.9%	4.2%	24.7%
		% within Progress Step							
		% of Total	0.0%	0.4%	4.2%	12.8%	7.1%	0.2%	24.7%
	4	Count	1 _c	4	22	112	143	22	304
		% within Initial Step	0.3%	1.3%	7.2%	36.8%	47.0%	7.2%	100.0%
			25.0%	36.4%	36.7%	64.0%	79.9%	91.7%	67.1%
		% within Progress Step							
		% of Total	0.2%	0.9%	4.9%	24.7%	31.6%	4.9%	67.1%
Total		Count	4	11	60	175	179	24	453
		% within Initial Step	0.9%	2.4%	13.2%	38.6%	39.5%	5.3%	100.0%
			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% within Progress Step							
		% of Total	0.9%	2.4%	13.2%	38.6%	39.5%	5.3%	100.0%

Interpretation

- For CEFP students identified in initial numeracy assessments as needing follow-up progress assessments (n=453), we found that
 - 203 (44.8%) achieved exemption level steps.
- For this subpopulation, we found that
 - 15 learners (3.3%) remained at risk (steps 1 and 2)
 - 96.7% of learners ended up at step 3 or higher

APPENDIX J: WINTEC COHORTS FOR READING AND NUMERACY – CENTRE FOR EDUCATION AND FOUNDATION PATHWAYS (LEVEL 2) (2015-2017)

		Progress Step for Reading						Total
		1	2	3	4	5	6	
Initial Step for Reading	1	Count	1	1	1	0	0	3
		% within Initial Step	33.3%	33.3%	33.3%	0.0%	0.0%	100.0%
		% within Progress Step	33.3%	6.3%	1.8%	0.0%	0.0%	2.4%
		% of Total	0.8%	0.8%	0.8%	0.0%	0.0%	2.4%
	2	Count	2	10	18	9	1	40
		% within Initial Step	5.0%	25.0%	45.0%	22.5%	2.5%	100.0%
		% within Progress Step	66.7%	62.5%	31.6%	21.4%	14.3%	31.5%
		% of Total	1.6%	7.9%	14.2%	7.1%	0.8%	31.5%
	3	Count	0	5	38	33	6	84
		% within Initial Step	0.0%	6.0%	45.2%	39.3%	7.1%	100.0%
		% within Progress Step	0.0%	31.3%	66.7%	78.6%	85.7%	66.1%
		% of Total	0.0%	3.9%	29.9%	26.0%	4.7%	66.1%
Total		Count	3	16	57	42	7	127
		% within Initial Step	2.4%	12.6%	44.9%	33.1%	5.5%	100.0%
		% within Progress Step	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	2.4%	12.6%	44.9%	33.1%	5.5%	100.0%

Table 2: Initial Step x Progress Step for Numeracy - Centre for Education and Foundation Pathways (Level 2) (CEFP) (2015-2017) (n=170)

		Progress Step for Numeracy						Total
		1	2	3	4	5	6	
Initial Step for Numeracy	1	Count	2	1	3	0	0	6
		% within Initial Step	33.3%	16.7%	50.0%	0.0%	0.0%	100.0%
		% within Progress Step	66.7%	12.5%	10.0%	0.0%	0.0%	3.5%
		% of Total	1.2%	0.6%	1.8%	0.0%	0.0%	3.5%
	2	Count	1	4	12	2	3	22
		% within Initial Step	4.5%	18.2%	54.5%	9.1%	13.6%	100.0%
		% within Progress Step	33.3%	50.0%	40.0%	3.4%	4.6%	12.9%
		% of Total	0.6%	2.4%	7.1%	1.2%	1.8%	12.9%
	3	Count	0	2	7	19	13	41
		% within Initial Step	0.0%	4.9%	17.1%	46.3%	31.7%	100.0%
		% within Progress Step	0.0%	25.0%	23.3%	32.2%	20.0%	24.1%
		% of Total	0.0%	1.2%	4.1%	11.2%	7.6%	24.1%
	4	Count	0	1	8	38	49	101
		% within Initial Step	0.0%	1.0%	7.9%	37.6%	48.5%	100.0%
		% within Progress Step	0.0%	12.5%	26.7%	64.4%	75.4%	59.4%
		% of Total	0.0%	0.6%	4.7%	22.4%	28.8%	59.4%
Total		Count	3	8	30	59	65	170
		% within Initial Step	1.8%	4.7%	17.6%	34.7%	38.2%	100.0%
		% within Progress Step	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	1.8%	4.7%	17.6%	34.7%	38.2%	100.0%

Interpretation

- For CEFP Level-2 students identified in initial numeracy assessments as needing follow-up progress assessments (n=170), we found that
 - 70 (41.1%) achieved exemption level steps.
- For this subpopulation, we found that
 - 11 learners (6.5%) remained at risk (steps 1 and 2)
 - 93.5% of learners ended up at step 3 or higher.

APPENDIX K: WINTEC COHORTS FOR READING AND NUMERACY - CENTRE FOR EDUCATION AND FOUNDATION PATHWAYS (LEVEL 4) (2015-2017)

Table 1: Initial Step x Progress Step for Reading - Centre for Education and Foundation Pathways (CEFP)(Level 4) (2015-2017)(n=209)								
			Progress Step for Reading					Total
			2	3	4	5	6	
Initial Step for Reading	1	Count	0	1	1	0	0	2
		% within Initial Step	0.0%	50.0%	50.0%	0.0%	0.0%	100.0%
		% within Progress Step	0.0%	1.3%	1.1%	0.0%	0.0%	1.0%
		% of Total	0.0%	0.5%	0.5%	0.0%	0.0%	1.0%
	2	Count	5	13	7	0	0	25
		% within Initial Step	20.0%	52.0%	28.0%	0.0%	0.0%	100.0%
		% within Progress Step	35.7%	16.7%	7.6%	0.0%	0.0%	12.0%
		% of Total	2.4%	6.2%	3.3%	0.0%	0.0%	12.0%
	3	Count	9	64	84	21	4	182
		% within Initial Step	4.9%	35.2%	46.2%	11.5%	2.2%	100.0%
		% within Progress Step	64.3%	82.1%	91.3%	100.0%	100.0%	87.1%
		% of Total	4.3%	30.6%	40.2%	10.0%	1.9%	87.1%
Total	Count	14	78	92	21	4	209	
	% within Initial Step	6.7%	37.3%	44.0%	10.0%	1.9%	100.0%	
	% within Progress Step	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
	% of Total	6.7%	37.3%	44.0%	10.0%	1.9%	100.0%	

Interpretation

- For CEFP Level-4 students identified in initial reading assessments as needing follow-up progress assessments (n=209), we found that
 - 117 (55.9%) achieved exemption level steps.
- For this subpopulation, we found that
 - 92 learners (44%) remained at risk (steps 1 and 2)
 - 56% of learners ended up at step 3 or higher.

Table 2: Initial Step x Progress Step for Numeracy - Centre for Education and Foundation Pathways (Level 4) (2015-2017) (n=283)

			Progress Step for Numeracy						Total
			1	2	3	4	5	6	
Initial Step for Numeracy	1	Count	0	0	1	0	0	0	1
		% within Initial Step	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	100.0%
			0.0%	0.0%	3.3%	0.0%	0.0%	0.0%	0.4%
		% within Progress Step	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	0.4%
		% of Total	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	0.4%
	2	Count	0	0	3	3	1	1	8
		% within Initial Step	0.0%	0.0%	37.5%	37.5%	12.5%	12.5%	100.0%
			0.0%	0.0%	10.0%	2.6%	0.9%	5.3%	2.8%
		% within Progress Step	0.0%	0.0%	1.1%	1.1%	0.4%	0.4%	2.8%
		% of Total	0.0%	0.0%	1.1%	1.1%	0.4%	0.4%	2.8%
	3	Count	0	0	12	39	19	1	71
		% within Initial Step	0.0%	0.0%	16.9%	54.9%	26.8%	1.4%	100.0%
			0.0%	0.0%	40.0%	33.6%	16.7%	5.3%	25.1%
		% within Progress Step	0.0%	0.0%	4.2%	13.8%	6.7%	0.4%	25.1%
		% of Total	0.0%	0.0%	4.2%	13.8%	6.7%	0.4%	25.1%
	4	Count	1	3	14	74	94	17	203
		% within Initial Step	0.5%	1.5%	6.9%	36.5%	46.3%	8.4%	100.0%
			100.0%	100.0%	46.7%	63.8%	82.5%	89.5%	71.7%
		% within Progress Step	0.4%	1.1%	4.9%	26.1%	33.2%	6.0%	71.7%
		% of Total	0.4%	1.1%	4.9%	26.1%	33.2%	6.0%	71.7%
	Total	Count	1	3	30	116	114	19	283
		% within Initial Step	0.4%	1.1%	10.6%	41.0%	40.3%	6.7%	100.0%
			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% within Progress Step	0.4%	1.1%	10.6%	41.0%	40.3%	6.7%	100.0%
		% of Total	0.4%	1.1%	10.6%	41.0%	40.3%	6.7%	100.0%

Interpretation

For CEFPP Level-4 students identified in initial numeracy assessments as needing follow-up progress assessments (n=283), we found that

- 133 (47%) achieved exemption level steps.
- For this subpopulation, we found that
 - 4 learners (1.5%) remained at risk (steps 1 and 2)
 - 98.5% of learners ended up at step 3 or higher.

APPENDIX L: WINTEC COHORTS FOR READING AND NUMERACY – CENTRE FOR SCIENCE AND PRIMARY INDUSTRIES (CSPI) (2015-2017)
Table 1: Initial Step x Progress Step for Reading - Centre for Science and Primary Industries (CSPI) (2015-2017) (n=126)

			Progress Step for Reading						Total
			1	2	3	4	5	6	
Initial Step for Reading	2	Count	0	8	16	5	6	1	36
		% within Initial Step	0.0%	22.2%	44.4%	13.9%	16.7%	2.8%	100.0%
		% within Progress Step	0.0%	40.0%	34.0%	12.8%	42.9%	20.0%	28.6%
		% of Total	0.0%	6.3%	12.7%	4.0%	4.8%	0.8%	28.6%
	3	Count	1	12	31	34	8	4	90
		% within Initial Step	1.1%	13.3%	34.4%	37.8%	8.9%	4.4%	100.0%
		% within Progress Step	100.0%	60.0%	66.0%	87.2%	57.1%	80.0%	71.4%
		% of Total	0.8%	9.5%	24.6%	27.0%	6.3%	3.2%	71.4%
Total		Count	1	20	47	39	14	5	126
		% within Initial Step	0.8%	15.9%	37.3%	31.0%	11.1%	4.0%	100.0%
		% within Progress Step	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	0.8%	15.9%	37.3%	31.0%	11.1%	4.0%	100.0%

Interpretation

- For CSPI students identified in initial reading assessments as needing follow-up progress assessments (n=126), we found that
 - 58 (46.1%) achieved exemption level steps.
- For this subpopulation, we found that
 - 21 learners (16.7%) remained at risk (steps 1 and 2)
 - 83.3% of learners ended up at step 3 or higher.

Table 2: Initial Step x Progress Step for Numeracy - Centre for Science and Primary Industries (CSPI) (2015-2017) (n=134)

		Progress Step for Numeracy						Total	
		1	2	3	4	5	6		
Initial Step for Numeracy	1	Count	0	0	0	1	0	0	1
		% within Initial Step	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	100.0%
		% within Progress Step	0.0%	0.0%	0.0%	2.0%	0.0%	0.0%	0.7%
		% of Total	0.0%	0.0%	0.0%	0.7%	0.0%	0.0%	0.7%
	2	Count	0	2	6	4	2	1	15
		% within Initial Step	0.0%	13.3%	40.0%	26.7%	13.3%	6.7%	100.0%
		% within Progress Step	0.0%	22.2%	30.0%	7.8%	5.9%	5.3%	11.2%
		% of Total	0.0%	1.5%	4.5%	3.0%	1.5%	0.7%	11.2%
	3	Count	1	4	7	22	5	5	44
		% within Initial Step	2.3%	9.1%	15.9%	50.0%	11.4%	11.4%	100.0%
		% within Progress Step	100.0%	44.4%	35.0%	43.1%	14.7%	26.3%	32.8%
		% of Total	0.7%	3.0%	5.2%	16.4%	3.7%	3.7%	32.8%
	4	Count	0	3	7	24	27	13	74
		% within Initial Step	0.0%	4.1%	9.5%	32.4%	36.5%	17.6%	100.0%
		% within Progress Step	0.0%	33.3%	35.0%	47.1%	79.4%	68.4%	55.2%
		% of Total	0.0%	2.2%	5.2%	17.9%	20.1%	9.7%	55.2%
Total	Count	1	9	20	51	34	19	134	
	% within Initial Step	0.7%	6.7%	14.9%	38.1%	25.4%	14.2%	100.0%	
	% within Progress Step	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
	% of Total	0.7%	6.7%	14.9%	38.1%	25.4%	14.2%	100.0%	

Interpretation

- For CSPI students identified in initial numeracy assessments as needing follow-up progress assessments (n=134), we found that
 - 53 (39.6%) achieved exemption level steps.
- For this subpopulation, we found that
 - 10 learners (7.4%) remained at risk (steps 1 and 2)
 - 92.6% of learners ended up at step 3 or higher.

APPENDIX M: WINTEC COHORTS FOR READING AND NUMERACY – ACROSS-CENTRE PROGRAMMES (2015-2017)
Table 1: Initial Step x Progress Step for Reading - Co-owned Programmes (MCP, MPTT, WTA and YG) (2015-2017) (n=974)

			Progress Step for Reading						Total
			1	2	3	4	5	6	
Initial Step for Reading	1	Count	9	22	19	5	1 _c	0	56
		% within Initial Step	16.1%	39.3%	33.9%	8.9%	1.8%	0.0%	100.0%
		% within Progress Step	34.6%	15.8%	4.2%	1.6%	2.7%	0.0%	5.7%
		% of Total	0.9%	2.3%	2.0%	0.5%	0.1%	0.0%	5.7%
	2	Count	10	66	145	56	6	0	283
		% within Initial Step	3.5%	23.3%	51.2%	19.8%	2.1%	0.0%	100.0%
		% within Progress Step	38.5%	47.5%	32.1%	17.9%	16.2%	0.0%	29.1%
		% of Total	1.0%	6.8%	14.9%	5.7%	0.6%	0.0%	29.1%
	3	Count	7	51	288	251	30	8	635
		% within Initial Step	1.1%	8.0%	45.4%	39.5%	4.7%	1.3%	100.0%
		% within Progress Step	26.9%	36.7%	63.7%	80.4%	81.1%	100.0%	65.2%
		% of Total	0.7%	5.2%	29.6%	25.8%	3.1%	0.8%	65.2%
	Total	Count	26	139	452	312	37	8	974
		% within Initial Step	2.7%	14.3%	46.4%	32.0%	3.8%	0.8%	100.0%
		% within Progress Step	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	2.7%	14.3%	46.4%	32.0%	3.8%	0.8%	100.0%

Interpretation

- For Across-School students identified in initial reading assessments as needing follow-up progress assessments (n=974), we found that
 - 357 (36.6%) achieved exemption level steps.
- For this subpopulation, we found that
 - 165 learners (17%) remained at risk (steps 1 and 2)
 - 83% of learners ended up at step 3 or higher.

Table 2: Initial Step x Progress Step for Numeracy - Co-owned Programmes (MCP, MPTT, WTA and YG) (2015-2017) (n=859)

			Progress Step for Numeracy						Total
			1	2	3	4	5	6	
Initial Step for Numeracy	1	Count	6	15	6	5	0	1	33
		% within Initial Step	18.2%	45.5%	18.2%	15.2%	0.0%	3.0%	100.0%
		% within Progress Step	40.0%	20.8%	3.6%	1.6%	0.0%	2.5%	3.8%
		% of Total	0.7%	1.7%	0.7%	0.6%	0.0%	0.1%	3.8%
	2	Count	6	29	41	24	19	3	122
		% within Initial Step	4.9%	23.8%	33.6%	19.7%	15.6%	2.5%	100.0%
		% within Progress Step	40.0%	40.3%	24.7%	7.7%	7.5%	7.5%	14.2%
		% of Total	0.7%	3.4%	4.8%	2.8%	2.2%	0.3%	14.2%
	3	Count	3 _{a, b, c}	16	68	106	49	6	248
		% within Initial Step	1.2%	6.5%	27.4%	42.7%	19.8%	2.4%	100.0%
		% within Progress Step	20.0%	22.2%	41.0%	34.1%	19.2%	15.0%	28.9%
		% of Total	0.3%	1.9%	7.9%	12.3%	5.7%	0.7%	28.9%
	4	Count	0	12	51	176	187	30	456
% within Initial Step		0.0%	2.6%	11.2%	38.6%	41.0%	6.6%	100.0%	
% within Progress Step		0.0%	16.7%	30.7%	56.6%	73.3%	75.0%	53.1%	
% of Total		0.0%	1.4%	5.9%	20.5%	21.8%	3.5%	53.1%	
Total	Count	15	72	166	311	255	40	859	
	% within Initial Step	1.7%	8.4%	19.3%	36.2%	29.7%	4.7%	100.0%	
	% within Progress Step	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
	% of Total	1.7%	8.4%	19.3%	36.2%	29.7%	4.7%	100.0%	

Interpretation

- For Across-School students identified in initial numeracy assessments as needing follow-up progress assessments (n=859), we found that
 - 295 (34.4%) achieved exemption level steps.
- For this subpopulation, we found that
 - 87 learners (10.1%) remained at risk (steps 1 and 2)
 - 89.9% of learners ended up at step 3 or higher.

APPENDIX N: WINTEC COHORTS FOR READING AND NUMERACY – MY CAREER PATHWAY (MCP) (2015-2017)
Table 1: Initial Step x Progress Step for Reading - My Career Pathway (2015-2017) (n=42)

			Progress Step for Reading						Total
			1	2	3	4	5	6	
Initial Step for Reading	1	Count	1	4	2	0	0	0	7
		% within Initial Step	14.3%	57.1%	28.6%	0.0%	0.0%	0.0%	100.0%
		% within Progress Step	50.0%	80.0%	10.0%	0.0%	0.0%	0.0%	16.7%
		% of Total	2.4%	9.5%	4.8%	0.0%	0.0%	0.0%	16.7%
3		Count	1	1	18	12	2	1	35
		% within Initial Step	2.9%	2.9%	51.4%	34.3%	5.7%	2.9%	100.0%
		% within Progress Step	50.0%	20.0%	90.0%	100.0%	100.0%	100.0%	83.3%
		% of Total	2.4%	2.4%	42.9%	28.6%	4.8%	2.4%	83.3%
Total		Count	2	5	20	12	2	1	42
		% within Initial Step	4.8%	11.9%	47.6%	28.6%	4.8%	2.4%	100.0%
		% within Progress Step	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	4.8%	11.9%	47.6%	28.6%	4.8%	2.4%	100.0%

Interpretation

- For MCP students identified in initial reading assessments as needing follow-up progress assessments (n=42), we found that
 - 15 (35.8%) achieved exemption level steps.
- For this subpopulation, we found that
 - 7 learners (16.7%) remained at risk (steps 1 and 2)
 - 83.3% of learners ended up at step 3 or higher.

Table 2: Initial Step x Progress Step for Numeracy - My Career Pathway (MCP) (2015-2017) (n=56)

			Progress Step for Numeracy						Total
			1	2	3	4	5	6	
Initial Step for Numeracy	1	Count	1	4	0	0	0	0	5
			20.0%	80.0%	0.0%	0.0%	0.0%	0.0%	100.0%
		% within Initial Step	50.0%	57.1%	0.0%	0.0%	0.0%	0.0%	8.9%
		% within Progress Step							
		% of Total	1.8%	7.1%	0.0%	0.0%	0.0%	0.0%	8.9%
	2	Count	1	2	3	1	0	0	7
			14.3%	28.6%	42.9%	14.3%	0.0%	0.0%	100.0%
		% within Initial Step	50.0%	28.6%	15.0%	7.1%	0.0%	0.0%	12.5%
		% within Progress Step							
		% of Total	1.8%	3.6%	5.4%	1.8%	0.0%	0.0%	12.5%
	3	Count	0	1	8	7	1	0	17
			0.0%	5.9%	47.1%	41.2%	5.9%	0.0%	100.0%
		% within Initial Step	0.0%	14.3%	40.0%	50.0%	9.1%	0.0%	30.4%
		% within Progress Step							
		% of Total	0.0%	1.8%	14.3%	12.5%	1.8%	0.0%	30.4%
	4	Count	0	0	9	6	10	2	27
			0.0%	0.0%	33.3%	22.2%	37.0%	7.4%	100.0%
		% within Initial Step	0.0%	0.0%	45.0%	42.9%	90.9%	100.0%	48.2%
		% within Progress Step							
		% of Total	0.0%	0.0%	16.1%	10.7%	17.9%	3.6%	48.2%
Total	Count		2	7	20	14	11	2	56
			3.6%	12.5%	35.7%	25.0%	19.6%	3.6%	100.0%
		% within Initial Step	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% within Progress Step							
		% of Total	3.6%	12.5%	35.7%	25.0%	19.6%	3.6%	100.0%

Interpretation

- For MCP students identified in initial numeracy assessments as needing follow-up progress assessments (n=56) we found that
 - 13 (23.2) achieved exemption level steps.
- For this subpopulation, we found that
 - 9 learners (16.1%) remained at risk (steps 1 and 2)
 - 83.9% of learners ended up at step 3 or higher.

APPENDIX O: WINTEC COHORTS FOR READING AND NUMERACY – MĀORI TRADE TRAINING (MPTT) (2015-2017)
Table 1: Initial Step x Progress Step for Reading - Māori and Pasifika Trade Training (MPTT) (2015-2017) (n=83)

			Progress Step for Reading						Total
			1	2	3	4	5	6	
Initial Step for Reading	1	Count	2	1	2	0	0	0	5
		% within Initial Step	40.0%	20.0%	40.0%	0.0%	0.0%	0.0%	100.0%
		% within Progress Step	100.0%	7.7%	4.9%	0.0%	0.0%	0.0%	6.0%
		% of Total	2.4%	1.2%	2.4%	0.0%	0.0%	0.0%	6.0%
	2	Count	0	8	15	5	1	0	29
		% within Initial Step	0.0%	27.6%	51.7%	17.2%	3.4%	0.0%	100.0%
		% within Progress Step	0.0%	61.5%	36.6%	21.7%	33.3%	0.0%	34.9%
		% of Total	0.0%	9.6%	18.1%	6.0%	1.2%	0.0%	34.9%
	3	Count	0	4	24	18	2	1	49
		% within Initial Step	0.0%	8.2%	49.0%	36.7%	4.1%	2.0%	100.0%
		% within Progress Step	0.0%	30.8%	58.5%	78.3%	66.7%	100.0%	59.0%
		% of Total	0.0%	4.8%	28.9%	21.7%	2.4%	1.2%	59.0%
Total		Count	2	13	41	23	3	1	83
		% within Initial Step	2.4%	15.7%	49.4%	27.7%	3.6%	1.2%	100.0%
		% within Progress Step	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	2.4%	15.7%	49.4%	27.7%	3.6%	1.2%	100.0%

Interpretation

- For MPTT students identified in initial reading assessments as needing follow-up progress assessments (n=83), we found that
 - 27 (31.3%) achieved exemption level steps.
- For this subpopulation, we found that
 - 15 learners (18.1%) remained at risk (steps 1 and 2)
 - 81.9% of learners ended up at step 3 or higher.

Table 2: Initial Step x Progress Step for Numeracy - Māori and Pasifika Trade Training (MPTT) (2015-2017) (n=73)

			Progress Step for Numeracy					Total
			2	3	4	5	6	
Initial Step for Numeracy	1	Count	1	2	0	0	0	3
		% within Initial Step	33.3%	66.7%	0.0%	0.0%	0.0%	100.0%
			14.3%	14.3%	0.0%	0.0%	0.0%	4.1%
		% within Progress Step						
		% of Total	1.4%	2.7%	0.0%	0.0%	0.0%	4.1%
	2	Count	4	5	1	2	0	12
		% within Initial Step	33.3%	41.7%	8.3%	16.7%	0.0%	100.0%
			57.1%	35.7%	3.3%	10.5%	0.0%	16.4%
		% within Progress Step						
		% of Total	5.5%	6.8%	1.4%	2.7%	0.0%	16.4%
	3	Count	1	6	11	2	2	22
		% within Initial Step	4.5%	27.3%	50.0%	9.1%	9.1%	100.0%
			14.3%	42.9%	36.7%	10.5%	66.7%	30.1%
		% within Progress Step						
		% of Total	1.4%	8.2%	15.1%	2.7%	2.7%	30.1%
	4	Count	1	1	18	15	1	36
		% within Initial Step	2.8%	2.8%	50.0%	41.7%	2.8%	100.0%
			14.3%	7.1%	60.0%	78.9%	33.3%	49.3%
		% within Progress Step						
		% of Total	1.4%	1.4%	24.7%	20.5%	1.4%	49.3%
Total	Count	7	14	30	19	3	73	
	% within Initial Step	9.6%	19.2%	41.1%	26.0%	4.1%	100.0%	
		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
	% within Progress Step							
	% of Total	9.6%	19.2%	41.1%	26.0%	4.1%	100.0%	

Interpretation

- For MPTT students identified in initial numeracy assessments as needing follow-up progress assessments (n=73), we found that
 - 22 (30.1%) achieved exemption level steps.
- For this subpopulation, we found that
 - 21 learners (28.8%) remained at risk (steps 1 and 2)
 - 71.2% of learners ended up at step 3 or higher.

APPENDIX P: WINTEC COHORTS FOR READING AND NUMERACY – WAIKATO TRADES ACADEMY (WTA) (2015-2017)
Table 1: Initial Step x Progress Step for Reading - Waikato Trades Academy (WTA) (2015-2017) (n=767)

			Progress Step for Reading						Total
			1	2	3	4	5	6	
Initial Step for Reading	1	Count	4	16	15	4	1	0	40
		% within Initial Step	10.0%	40.0%	37.5%	10.0%	2.5%	0.0%	100.0%
		% within Progress Step	22.2%	15.2%	4.1%	1.6%	4.3%	0.0%	5.2%
		% of Total	0.5%	2.1%	2.0%	0.5%	0.1%	0.0%	5.2%
	2	Count	9	48	122	45	4	0	228
		% within Initial Step	3.9%	21.1%	53.5%	19.7%	1.8%	0.0%	100.0%
		% within Progress Step	50.0%	45.7%	33.7%	17.8%	17.4%	0.0%	29.7%
		% of Total	1.2%	6.3%	15.9%	5.9%	0.5%	0.0%	29.7%
	3	Count	5	41	225	204	18	6	499
		% within Initial Step	1.0%	8.2%	45.1%	40.9%	3.6%	1.2%	100.0%
		% within Progress Step	27.8%	39.0%	62.2%	80.6%	78.3%	100.0%	65.1%
		% of Total	0.7%	5.3%	29.3%	26.6%	2.3%	0.8%	65.1%
Total		Count	18	105	362	253	23	6	767
		% within Initial Step	2.3%	13.7%	47.2%	33.0%	3.0%	0.8%	100.0%
		% within Progress Step	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	2.3%	13.7%	47.2%	33.0%	3.0%	0.8%	100.0%

Interpretation

- For WTA students identified in initial reading assessments as needing follow-up progress assessments (n=767), we found that
 - 282 (36.8%) achieved exemption level steps.
- For this subpopulation, we found that
 - 123 learners (16.0%) remained at risk (steps 1 and 2)
 - 84.0% of learners ended up at step 3 or higher.

Table 2: Initial Step x Progress Step for Numeracy - Waikato Trades Academy (WTA) (2015-2017) (n=659)

			Progress Step for Numeracy						Total
			1	2	3	4	5	6	
Initial Step for Numeracy	1	Count	5	9	4	5	0	1	24
		% within Initial Step	20.8%	37.5%	16.7%	20.8%	0.0%	4.2%	100.0%
		% within Progress Step	38.5%	17.0%	3.3%	2.0%	0.0%	3.3%	3.6%
		% of Total	0.8%	1.4%	0.6%	0.8%	0.0%	0.2%	3.6%
	2	Count	5	21	30	21	15	3 _b	95
		% within Initial Step	5.3%	22.1%	31.6%	22.1%	15.8%	3.2%	100.0%
		% within Progress Step	38.5%	39.6%	24.6%	8.5%	7.7%	10.0%	14.4%
		% of Total	0.8%	3.2%	4.6%	3.2%	2.3%	0.5%	14.4%
	3	Count	3	14	50	77	38	3	185
		% within Initial Step	1.6%	7.6%	27.0%	41.6%	20.5%	1.6%	100.0%
		% within Progress Step	23.1%	26.4%	41.0%	31.2%	19.6%	10.0%	28.1%
		% of Total	0.5%	2.1%	7.6%	11.7%	5.8%	0.5%	28.1%
	4	Count	0	9	38	144	141	23	355
		% within Initial Step	0.0%	2.5%	10.7%	40.6%	39.7%	6.5%	100.0%
		% within Progress Step	0.0%	17.0%	31.1%	58.3%	72.7%	76.7%	53.9%
		% of Total	0.0%	1.4%	5.8%	21.9%	21.4%	3.5%	53.9%
Total		Count	13	53	122	247	194	30	659
		% within Initial Step	2.0%	8.0%	18.5%	37.5%	29.4%	4.6%	100.0%
		% within Progress Step	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	2.0%	8.0%	18.5%	37.5%	29.4%	4.6%	100.0%

Interpretation

- For WTA students identified in initial numeracy assessments as needing follow-up progress assessments (n=659), we found that
 - 224 (34%) of the cohort achieved exemption level steps.
- For this subpopulation, we found that
 - 66 learners (10.0%) remained at risk (steps 1 and 2)
 - 90.0% of learners ended up at step 3 or higher.

APPENDIX Q: WINTEC COHORTS FOR READING AND NUMERACY – YOUTH GUARANTEE (YG) (2015-2017)
**Table 1: Initial Step x Progress Step for Reading - Youth Guarantee (YG)(2015-2017)
(n=81)**

			Progress Step for Reading					Total
			1	2	3	4	5	
Initial Step for Reading	1	Count	2	1	0	1	0	4
		% within Initial Step	50.0%	25.0%	0.0%	25.0%	0.0%	100.0%
		% within Progress Step	50.0%	6.3%	0.0%	4.3%	0.0%	4.9%
		% of Total	2.5%	1.2%	0.0%	1.2%	0.0%	4.9%
2		Count	1	10	8	6	1	26
		% within Initial Step	3.8%	38.5%	30.8%	23.1%	3.8%	100.0%
		% within Progress Step	25.0%	62.5%	27.6%	26.1%	11.1%	32.1%
		% of Total	1.2%	12.3%	9.9%	7.4%	1.2%	32.1%
3		Count	1	5	21	16	8	51
		% within Initial Step	2.0%	9.8%	41.2%	31.4%	15.7%	100.0%
		% within Progress Step	25.0%	31.3%	72.4%	69.6%	88.9%	63.0%
		% of Total	1.2%	6.2%	25.9%	19.8%	9.9%	63.0%
Total		Count	4	16	29	23	9	81
		% within Initial Step	4.9%	19.8%	35.8%	28.4%	11.1%	100.0%
		% within Progress Step	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	4.9%	19.8%	35.8%	28.4%	11.1%	100.0%

Interpretation

- For Youth Guarantee students identified in initial reading assessments as needing follow-up progress assessments (n=81), we found that
 - 32 (39.5%) achieved exemption level steps.
- For this subpopulation, we found that
 - 20 learners (24.7%) remained at risk (steps 1 and 2)
 - 75.3% of learners ended up at step 3 or higher.

Table 2: Initial Step x Progress Step for Numeracy - Youth Guarantee (YG) (2015-2017)(n=71)

		Progress Step for Numeracy					Total
		2	3	4	5	6	
Initial Step for Numeracy	1	Count	1	0	0	0	1
		% within Initial Step	100.0%	0.0%	0.0%	0.0%	100.0%
			20.0%	0.0%	0.0%	0.0%	1.4%
		% within Progress Step					
		% of Total	1.4%	0.0%	0.0%	0.0%	1.4%
	2	Count	2	3	1	2	8
		% within Initial Step	25.0%	37.5%	12.5%	25.0%	100.0%
			40.0%	30.0%	5.0%	6.5%	11.3%
		% within Progress Step					
		% of Total	2.8%	4.2%	1.4%	2.8%	11.3%
	3	Count	0	4	11	8	24
		% within Initial Step	0.0%	16.7%	45.8%	33.3%	100.0%
			0.0%	40.0%	55.0%	25.8%	33.8%
		% within Progress Step					
		% of Total	0.0%	5.6%	15.5%	11.3%	33.8%
	4	Count	2	3	8	21	38
		% within Initial Step	5.3%	7.9%	21.1%	55.3%	100.0%
			40.0%	30.0%	40.0%	67.7%	53.5%
		% within Progress Step					
		% of Total	2.8%	4.2%	11.3%	29.6%	53.5%
Total		Count	5	10	20	31	71
		% within Initial Step	7.0%	14.1%	28.2%	43.7%	100.0%
			100.0%	100.0%	100.0%	100.0%	100.0%
		% within Progress Step					
		% of Total	7.0%	14.1%	28.2%	43.7%	100.0%

Interpretation

- For Youth Guarantee students identified in initial numeracy assessments as needing follow-up progress assessments (n=71), we found that
 - 36 (50.7%) achieved exemption level steps.
- For the total cohort, we found that
 - 5 learners (7.0%) remained at risk (steps 1 and 2)
 - 93.0% of learners ended up at step 3 or higher.

APPENDIX R: WINTEC COHORTS FOR READING AND NUMERACY – OTHER ORGANISATIONS (2015-2017)
Table 1: Initial Step x Progress Step for Reading - Other organisations (2015-2017) (n=205)

			Progress Step for Reading						Total
			1	2	3	4	5	6	
Initial Step for Reading	1	Count	5	3	4	2	1	0	15
		% within Initial Step	33.3%	20.0%	26.7%	13.3%	6.7%	0.0%	100.0%
		% within Progress Step	50.0%	8.8%	4.4%	3.6%	8.3%	0.0%	7.3%
		% of Total	2.4%	1.5%	2.0%	1.0%	0.5%	0.0%	7.3%
	2	Count	3	14	26	11	2	3	59
		% within Initial Step	5.1%	23.7%	44.1%	18.6%	3.4%	5.1%	100.0%
		% within Progress Step	30.0%	41.2%	28.9%	19.6%	16.7%	100.0%	28.8%
		% of Total	1.5%	6.8%	12.7%	5.4%	1.0%	1.5%	28.8%
	3	Count	2	17	60	43	9	0	131
		% within Initial Step	1.5%	13.0%	45.8%	32.8%	6.9%	0.0%	100.0%
		% within Progress Step	20.0%	50.0%	66.7%	76.8%	75.0%	0.0%	63.9%
		% of Total	1.0%	8.3%	29.3%	21.0%	4.4%	0.0%	63.9%
Total	Count		10	34	90	56	12	3	205
		% within Initial Step	4.9%	16.6%	43.9%	27.3%	5.9%	1.5%	100.0%
		% within Progress Step	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	4.9%	16.6%	43.9%	27.3%	5.9%	1.5%	100.0%

Interpretation

- For students, assessed at other organisations, re-assessed either at Wintec or elsewhere (n=205), we found that
 - 71 (34.7%) achieved exemption level steps.
- For this subpopulation, we found that
 - 44 (21.5%) remained at risk (steps 1 and 2)
 - 78.5% of learners ended up at step 3 or higher.

Table 2: Initial Step x Progress Step for Numeracy - Other organisations (2015-2017) (n=220)

			Progress Step for Numeracy						Total
			1	2	3	4	5	6	
39.1%	13.8%	Count	1	3	1	0	4	1	10
		% within Initial Step	10.0%	30.0%	10.0%	0.0%	40.0%	10.0%	100.0%
			25.0%	18.8%	2.9%	0.0%	6.2%	7.7%	4.5%
		% within Progress Step							
		% of Total	0.5%	1.4%	0.5%	0.0%	1.8%	0.5%	4.5%
2	Count	1	10	9	7	0	0	27	
	% within Initial Step	3.7%	37.0%	33.3%	25.9%	0.0%	0.0%	100.0%	
		25.0%	62.5%	25.7%	8.0%	0.0%	0.0%	12.3%	
	% within Progress Step								
	% of Total	0.5%	4.5%	4.1%	3.2%	0.0%	0.0%	12.3%	
3	Count	2	3	15	34	9	0	63	
	% within Initial Step	3.2%	4.8%	23.8%	54.0%	14.3%	0.0%	100.0%	
		50.0%	18.8%	42.9%			0.0%	28.6%	
	% within Progress Step								
	% of Total	0.9%	1.4%	6.8%	15.5%	4.1%	0.0%	28.6%	
4	Count	0	0	10	46	52	12	120	
	% within Initial Step	0.0%	0.0%	8.3%	38.3%	43.3%	10.0%	100.0%	
		0.0%	0.0%	28.6%	52.9%	80.0%	92.3%	54.5%	
	% within Progress Step								
	% of Total	0.0%	0.0%	4.5%	20.9%	23.6%	5.5%	54.5%	
Total	Count	4	16	35	87	65	13	220	
	% within Initial Step	1.8%	7.3%	15.9%	39.5%	29.5%	5.9%	100.0%	
		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
	% within Progress Step								
	% of Total	1.8%	7.3%	15.9%	39.5%	29.5%	5.9%	100.0%	

Interpretation

- For students, assessed at other organisations, re-assessed either at Wintec or elsewhere (n=220), we found that
 - 78 (35.4%) achieved exemption level steps.
- For this subpopulation, we found that
 - 20 learners (9.1%) remained at risk (steps 1 and 2)
 - 90.9% of learners ended up at step 3 or higher.

APPENDIX S: WINTEC COHORTS FOR READING AND NUMERACY ((2015-2017) – TEC LN PROGRESS CALCULATION ALGORITHM

In Table 1 we report the findings for the Wintec cohort (2015-2017). These modest results, somewhat below the 25% set in the draft policy document, show the impact of the proposed algorithm. We argue that

- If 69.4% of learners (n=1574) were at step 3 for reading (Appendix A, Table 1) and 57.4% of learners (n=1296) at step 4 for numeracy (Appendix A, Table 2) on initial assessment, the likelihood of reporting significant LN progress for the targeted learners at these higher levels was much lower than for learners at the lower end of the distribution.
- at higher levels of difficulty on the scale, it is far more difficult to achieve statistically significant gain.
- the algorithm masks LN success, especially where students progressed to exemption-level steps which are deemed by TEC to constitute low levels of risk.
- cross-tabulations represent a far more realistic mode of reflecting on LN progress, especially if we report on learners who achieved the threshold levels of exemption.
- cross-tabulations allow us to identify the proportions of students who have achieved gains of two or more steps, or who regressed.
- reading and numeracy gains that assist learners to achieve the exemption levels for reading and numeracy are statistically educationally significant.

We recommend that the results reported for the institute, centres and programmes be taken as baselines for setting targets for LN progress. These baselines may be cross-validated against earlier results for the institute (Greyling, 2017; and 2015a, b, c, d and e).

Table 1: Reading and numeracy gains for learners targeted for end-of-course re-testing for 2015-2017

School	At-risk (N) Reading	Sig. Gain Reading	% Sig. Gain Reading	At-risk (N) Numeracy	Sig. Gain Numeracy	% Sig. Gain Numeracy
Wintec Programmes	2267	430	19	2259	411	18.2
Pakeha	806	146	18.1	828	150	18.1
Maori	974	193	19.8	1013	200	19.7
Pasifika	178	33	18.5	172	30	17.4
Other ethnicities	309	58	18.8	246	31	12.6
Trades School/Programmes	311	50	16.1	256	41	16
Beauty, Hairdressing & Hospitality	168	34	20.2	180	34	18.9
CBITE	148	38	25.7	157	34	21.7
Education/Foundation Pathways	336	67	19.9	453	87	19.2
CEFP L2	127	25	19.7	170	30	17.6
CEFP L4	209	42	20.1	283	57	20.1
Sciences/Primary Industries	126	18	14.3	134	17	12.7
Across Schools	973	186	19.1	859	155	18
MCP	42	7	16.7	56	5	8.9
MPTT	83	14	16.9	73	13	13
WTA	767	147	19.2	659	128	19.4
YG	81	18	22.2	71	9	12.7
Other organisations	205	37	18	220	44	20

% Sig. Gain refers to the proportion of learners who have shown statistically significant gain for the period 2015-2017.